fore be called radiant heat or light) or produce chemical decomposition, as of carbonic acid and water in the leaves of plants, or of silver salts in photography (and be therefore called actinism); the energy of motion of the particles of a gas, upon which its pressure depends, &c. [When the motion is vibratory the energy is generally half potential, half kinetic.]

These explanations and definitions being premised, we can now translate Newton's words (without alteration of their meaning) into the language of modern science, as follows:—

*Work done on any system of bodies* (in Newton's statement the parts of any machine) *has its equivalent in work done against friction, molecular forces, or gravity, if there be no acceleration; but if there be acceleration, part of the work is expended in overcoming the resistance to acceleration, and the additional kinetic energy developed is equivalent to the work so spent.*

But we have just seen that when work is spent against molecular forces, as in drawing a bow or winding up a spring, it is stored up as potential energy. Also it is stored up in a similar form when done against gravity, as in raising a weight.

Hence it appears that, according to Newton, whenever work is spent it is stored up either as potential or as kinetic energy, except, possibly, in the case of work done against friction, about whose fate he gives us no information. Thus Newton expressly tells us that (except, possibly, when there is friction) *work is indestructible,* it is changed from one form of energy to another, and so on, but never altered in quantity. To make this beautiful statement complete, all that is requisite is to know *what becomes of work spent against friction.*

Here, of course, experiment is requisite. Newton, unfortunately, seems to have forgotten that savage men had long since been in the habit of making it whenever they wished to procure fire. The patient rubbing of two dry sticks together, or (still better) the drilling of a soft piece of wood with the slightly blunted point of a hard piece, is known to all tribes of savages as a means of setting both pieces of wood on fire. Here, then, heat is undoubtedly produced, *but it is produced by the expenditure of work.* In fact work done against friction has its equivalent in the heat produced. This Newton failed to see, and thus his grand generalisation was left, though on one point only, incomplete. The converse transformation, that of heat into work, dates back to the time of Hero at least. But the knowledge that a certain process will produce a certain result does not necessarily imply even a notion of the "why;" and Hero as little imagined that in his æolipile heat was *converted into work,* as do savages that work can be *converted into heat.*

But whenever any such conversion or transference takes place there is necessarily motion: and the mere rate of conversion or transference of energy per unit length of that motion is, in the present state of science, very conveniently called force. No confusion can arise from using such a word in such a sense. On the contrary, there is always a gain in clearness when compactness can lawfully be introduced.

Rumford and Davy, at the very end of last century, by totally different experimental processes, showed conclusively that the materiality of heat could not be maintained, and thus gave the means of completing Newton's statement which, still farther extended and generalised rather more than thirty years ago by the magnificent experimental work of Colding and Joule, now stands as one massive pillar of the fast-rising temple of science:—known as the law of the *conservation of energy.*

The conception of kinetic energy is a very simple one, at least when visible motion alone is involved. And from motion of visible masses to those motions of the particles of bodies whose energy we call heat, is by no means a very difficult mental transition. Mark, however, that heat is not the mere motions but the energy of these motions; a very different thing, for heat and kinetic energy in general are no more "*modes of motion*" than potential energy of every kind (including that of unfired gunpowder) is a "*mode of rest!*" In fact a "*mode of motion*" is, if the word motion be used in its ordinary sense, purely kinematical, not physical; and if motion be used in Newton's sense, it refers to momentum, not to energy.

The conception of potential energy, however, is not by any means so easy or direct. In fact, the apparently direct testimony of our muscular sense to the existence of force makes it at first much easier for us to conceive of force than of potential energy. *Why* two masses of matter possess potential energy when separated—in virtue of which they are conveniently said to attract one another—is still one of the most obscure problems in physics. I have not now time to enter on a discussion of the very ingenious idea of the ultramundane corpuscles, the outcome of the life-work of Le Sage, and the only even apparently hopeful attempt which has yet been made to explain the mechanism of gravitation. The most singular thing about it is that, if it be true, it will probably lead us to regard all kinds of energy as ultimately kinetic.

And a singular quasi-metaphysical argument may be raised on this point, of which I can give only the barest outline. The mutual convertibility of kinetic and potential energy shows that relations of equality (though not necessarily of identity) can exist between the two, and thus that their proper expressions involve the same fundamental units, and in the same way. Thus, as we have already seen that kinetic energy involves the unit of mass and the square of the linear unit directly, together with the square of the time unit inversely, the same must be the case with potential energy; and it seems very singular that potential energy should thus essentially involve the unit of time if it do not ultimately depend in some way on energy of motion.

[Prof. Tait then gives instances of the inaccurate use of the word Force.]

To conclude—In defence of accuracy, which is the *sine quâ non* of all science, we must be "zealous," as it were, even to "slaying." And, as all the power of the *Times* will not compel us to put a *y* instead of an *e* into the word chemist, so neither will the bad example of Germany and France, though recommended to us with all the authority which may be attributed to an ex-president of this Association, succeed in inducing us to attach two or more perfectly distinct and incompatible scientific meanings to that useful little word, "force," which Newton has once and for ever defined for us with his transcendent clearness of conception.

I have now only to ask your indulgence for the crudeness of this lecture. All I can say is that in preparing it, I have done my best, under circumstances of time, place, and surroundings, all alike unpropitious. But the chance of being able to back up, however imperfectly, my old friend, Dr. Andrews, in whose laboratory I first learned properly to use scientific apparatus, and whose sage counsel impressed upon me the paramount importance of scientific accuracy, and above all, of scientific honesty—such a chance was one which no surroundings (however unpropitious) could have induced me to forego.

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## NOTES

We have received the "Daily Programme of the Twenty-fifth Meeting of the American Association," held at Buffalo, August 23–30. It forms a pamphlet of about 100 pages, but appears to have been published daily during the meetings, and is quite a model of what such a programme should be. It is clearly printed on excellent paper, and has not the overcrowded appearance that the programme of the British Association often presents. At the last meeting a standing committee was appointed to superintend the selection of papers, and to this committee a short abstract must be sent before the title of a paper can be transmitted to the sectional committees. A list of accepted papers is given each day, and appended is the time each is supposed to occupy in reading. The work of each section for each day is indicated, and all the necessary information as to officers, regulations, &c., are given. A list is also given daily of the number of members "elected" and the number "registered," with their addresses. Altogether for this meeting these amount to 352, and the number of papers entered for reading is 147. At this meeting seventeen fellows were elected, consisting of some of the best known names in American science. The next meeting of the Association will be held at Nashville, Tenn., on the last Wednesday of August, 1877, the president-elect being Prof. Simon Newcomb, of Washington.

Prof. Huxley was present at the meeting of the American Association for the Advancement of Science, held at Buffalo. After stating that he was quite unprepared to occupy their attention, he said:—In England we have no adequate idea of the extent of your country, its enormous resources, the distances from centre to centre of population, and we least of all understand the great basis of character which sprung from the other side of the Atlantic. There has been some talk of the influence of your climate carrying you back to the North American type, I cannot say that I can see any signs of that unless it be in the development of that virtue of hospitality which prevails among all savages. Another feature I have observed which fills me with a certain amount of shame, when I think of what is going on in our country. I have visited your great Universities of Yale and Harvard, and have seen how your wealthy men contribute to scientific institutions in a way to which we are totally unaccustomed in England. The general notion of an Englishman who becomes rich is to buy an estate and found a family. The general notion of an American who becomes rich is to do something for the benefit of the people, and to found an institution whose benefits shall flow to all. I need hardly say which I regard as the noblest of these two. It is commonly said there are no antiquities in America, and you have to come to the Old World to see the past. This may be, so far as regards the trumpery of 3,000 or 4,000 years of human history. But, in the larger sense America is the country to study antiquity. I confess that the reality somewhat exceeded my expectations. It was my great good fortune to study in Newhaven the excellent collection made by my good friend, Prof. Marsh. There does not exist in Europe anything approaching it as regards extent and the geological time it covers, and the light it throws on the wonderful problem of evolution which has been so ably discussed before you by Prof. Morse, and which has occupied so much attention since Darwin's great work on species. Before the gathering of such materials as those to which I have referred, evolution was a matter of speculation and argument, though we who had adhered to the doctrine had good grounds for our belief. Now things are changed, and it has become a matter of fact and history. The history of evolution, as a matter of fact, is now distinctly traceable. We know it has happened, and what remains is the subordinate question of how it happened. I wish you all good speed, and that this Association, like its sister in Great Britain, will sow the seeds of scientific inquiry in all the towns it visits, and thus help on the great good work."

On Tuesday the proceedings of the Iron and Steel Institute were formally opened at Leeds, Mr. W. Menelaus, President, in the chair. The choice of President for the ensuing Session has fallen upon Dr. C. W. Siemens, F.R.S. The geological features of the neighbourhood of Leeds was the subject of an interesting and valuable paper by Prof. Green, F.G.S., of the Yorkshire College of Science, read by the Secretary. The paper was descriptive of the various geological formations of the district, the coal measures and the iron deposits being specially referred to. Referring to the coal mines of the district, he observed that there was an area of forty square miles upon which no coal had as yet been raised, although it was well known that coal-seams existed beneath the surface. A very small proportion only of the Yorkshire coal-fields had as yet been worked, a large area remaining untouched which contained the vast store of coal for future use. A paper was read by Mr. Dove, junior, on the North Lincolnshire Iron District. The author described the new iron district of North Lincolnshire, the centre of which is Frodingham. It appears the district has only been known for the past fifteen years, during which time its rise and development have been steady and rapid. The question of the open *versus* close-topped blast-furnaces was then discussed. Mr. J. Lowthian Bell, M.P., observed that as far as economy of fuel in the smelting process was concerned, there was not much to choose between the two systems in ordinary practice; where the real economy lay in close-topped furnaces was in the utilisation of the gases from the furnace for heating the steam boilers and the stoves. Mr. John Jones, the secretary of the Institute, then read a paper on technical education in connection with the iron trade. He observed that the great hindrance which had hitherto been experienced in dealing with technical education had been the unsatisfactory condition of primary education in England. Most of the time of the meeting during the week will be occupied in visiting the various industrial establishments in Leeds and neighbourhood.

Among the papers read at the Oriental Congress, in addition to those already mentioned, are the following:—Mr. Smirnow read an account of a Turkish MS. in the University Library of St. Petersburg, "On the Mythology of the Asiatic Peoples." The age of this MS. he thinks to be the 17th century. Prof. de Rosny then discussed with much learning and at considerable length the comparative philology of the languages vaguely styled Turanian, the meaning and application of which term he critically investigated. He thought there was as safe a basis for the scientific classification of these tongues—comprising the Chinese, Japanese, Tatar, Finnish, Basque, &c.—as there was acknowledged to be for that of the Aryan and Semitic languages. M. Slovstof read an interesting paper on "The History of Public Instruction in Western Siberia," and M. Neumann one on the Tchouktchis, a generic name for three different peoples who inhabit the whole of North-East Siberia—viz., (1) the Rennes, (2) the Aigwanes, (3) the Nammolo. M. Sobruk, an Ostiak gentleman, read a memoir of great interest on the idols of his people and the Voguls, which, however, were no longer worshipped in public, or at least very rarely. Those which exist are confined to the huts of the believers. M. Solovief gave an ethnographical survey of the Samoied tribes of Siberia. Mr. Bonnell introduced the subject of the Scytho-Sarmatians and other inhabitants of the coasts of the Euxine, whose fortunes and history he elaborately traced in the pages of successive chroniclers, beginning with Herodotus. A communication by M. Schmidt, of Gevelsberg, after tracing the origin of Egyptian civilisation to Mesopotamia, from which it migrated to the Nile across the Persian Gulf, by way of Arabia and Ethiopia, was chiefly interesting for the attention he drew to the striking analogies in the languages of the American tribes with those of the Armeno-Caucasians, which were altogether too intimate, too frequent, and too decided to allow of the entertainment of any hypothesis of accidental similarity. From this suggestive line of thought M. Schmidt passed on to the consideration of the ethnological antiquities of the Medes, the bulk of whom he believed to be an Iranian people. M. Oppert developed his ideas upon the cuneiform texts written in the language of ancient Armenia and called Armeniac, but having no affinities with the language known as Armenian. M. Sachau strongly urged the importance of studying the scientific literature of the Arabs, and praised most warmly the services rendered to such studies by the publications of the St. Petersburg Academy, instancing the translation of Abderahman al Sufi's "Description of the Fixed Stars." Many other subjects of importance, mainly relating to the traditions, mythology, history, and literature of the varied peoples of the vast Russian territory, were discussed. The Congress will hold its next meeting at Florence.

The paper by Mr. J. A. Broun "On Simultaneous Variations of the Barometer" (*Proc.* Roy. Soc., No. 171, 1876), is remarkable as raising the inquiry whether there may not be other causes of varying atmospheric pressure than change of the mass of air, in other words, whether the attraction of gravitation be the only force concerned in the barometric oscillations. It is shown from observations made at places in Europe, Asia, Australasia, Africa, and America during the week March 31 to April 5, 1845, that all the curves exhibit a maximum near the beginning and another near the end of the week, with a minimum near the middle, and it is inferred that we have here an indication of the general action of the same cause of barometric variation over the earth. Since it would be impossible to over-estimate the importance of the point here raised if it should turn out to be correct, we shall look forward with much interest to the further investigation of the subject promised us by Mr. Broun. In this connection the

International Charts of General Myer, of the United States, will be of the very greatest value.

IN a recent number of *Poggendorff's Annalen*, Dr. G. Berthold makes an interesting contribution to the history of the radiometer. It appears that in a paper entitled "Eclaircissement sur le traité physique et historique de l'aurore boréale," published in the *Memoirs* of the Paris Academy for 1747, M. Mairan gives a description of a light mill. This was a horizontal wheel of iron about 3 inches in diameter, having six radii; at the end of each radius was a small oblique vane. The axis of the wheel was held by its upper point to the end of a magnetic bar. The weight was only thirty grains. Light was concentrated on it with a lens. "Nothing could be more mobile," says M. Mairan, "than this wheel; but at the same time nothing is less certain than the induction one might wish to draw from it in favour of an impulsion by the rays. The machine turns now in one direction, now in the other, according as you bring one of its vanes more or less near to the bars, within, or beyond the latter. It is necessary to conclude that the luminous rays attract and repel at different points of the cone which is formed by the lens, but the explosion of a mass of air suddenly and unequally heated round the vane where the focus is applied, appears to me to give a sufficient reason for these effects. The perpetual obstacle of the air naturally suggested to me to make one of these experiments *in vacuo*, but I avow that after having reflected a little on what might be the result, I have not thought it worth while taking the trouble." The reasons which thus unfortunately prevented M. Mairan from repeating his experiments *in vacuo* were, (1) the difficulty of producing a sufficient vacuum; (2) the idea, that besides the atmospheric air there was another fluid, which would penetrate the glass and make the experiment doubtful; (3) through action of the burning-glass vapours would rise from the body *in vacuo*, which would, by their impulsion, set it in motion. Dr. Berthold further notices an observation by Michell in Priestley's "History of Optics;" a piece of piano string, 10 in. long, having a square copper plate at one end, and a grain of shot at the other, was pivoted in a case having its cover and one side of glass. Solar rays directed from a concave mirror on the copper plate produced repulsion. Priestly considered that this motion must not be attributed to impact of the light rays.

THE French *Journal Official* publishes a letter from Shanghai stating that a Chinese Polytechnic Institution, supported by private contributions, has been opened there.

PETERMANN'S *Mittheilungen* for September contains some papers of great interest. Dr. Hermann Wagner, of Königsberg, contributes a careful and detailed *résumé* of the most recent trustworthy contributions to a knowledge of the Bolivian littoral, its physical features, products, and people, accompanied by a map. Oscar Loew gives the results of Lieut. Wheeler's expedition in California, Nevada, and Arizona for the year 1875, the results being embodied in a map by Dr. Petermann. Lieut. Weyprecht's "Pictures from the High North" are continued, the present instalment giving an interesting account of the behaviour of the sailors of the expedition in the ice. The Brazilian engineer, Maximilian Emerich, describes the various projects that have been proposed for a South American Pacific railway, and Dr. Mupperg, of Venice, contributes a picturesque paper on the German element, which is very strong, in Italy, especially in South Tyrol.

A HURRICANE burst over St. Thomas and St. Croix on the night of the 12th inst. The damage done was not extensive. Rain fell in torrents the whole time.

SNOW has been observed not only in Scotland on the Grampians, but on the Observatory of Puy-de-Dôme, on the 12th instant, and on the Alps round St. Jeanne, Maurienne, and other places, about the same time.

HER Majesty has directed letters patent to be passed under the Great Seal declaring that the degrees of Bachelor and Master in Arts, and Bachelor and Doctor in Law, Medicine, and Music, hereafter to be granted or conferred by the University of New Zealand, shall be recognised as academic distinctions and rewards of merit, and be entitled to rank, precedence, and consideration in the United Kingdom, and in the colonies and possessions of the crown throughout the world, as fully as if the said degrees had been granted by any university of the said United Kingdom.

THE Dutch Government has ordered from the French International Metric Commission, a copy of the standard metre, to be executed at its own expense. The same thing has been done already for the English Government.

ON Oct. 1 the first number of *The Sunday Review* will be published by Trübner and Co. It will be a shilling quarterly magazine, the organ of the Sunday Society, whose object, our readers know, is to obtain the opening of museums, art galleries, libraries, aquariums, and gardens on Sundays.

PART I., Vol. 1, of the *Proceedings* of the West London Scientific Association has been published. It contains the inaugural address of the President, the Rev. G. Henslow, for 1875-6, and a report of the meetings to the end of last year.

THE system of forest conservancy which is proving so satisfactory in India, is becoming imitated more or less in various parts of the world. In the Vilayet of Trebizond the virgin forests cover an area of 1,000 square miles, one half of which belongs to the crown, and the other half, which consists mainly of groves, situated in the vicinity of villages, is considered by the inhabitants as belonging to the commons, and in a few cases to private individuals. Most of the crown forests are in the districts of Livanah, Adjarah, Batoom, Tsorook Soo, and Off on the east; of Trebizond, Ordoo, Guerela, and Aktshe Abad on the west; and Madjka, Kurtine, Kelkit, and Shagran on the south. In these forests the pitch-pine, fir, ordinary pine, and beech predominate. Chestnut, alder, elm, oak, ash, maple, and lime are also everywhere and in great numbers. Boxwood grows especially at Alina and Rijah, and the juniper at Kerasond, Tinebali, and Livanah. The mean distance of the forests from the sea-shore is about fifteen miles. Although in general the means of transport are wanting, there are many forests that can be worked with comparatively small outlays for the construction of short roads, in consequence of the proximity to the existing high roads, such as the forests of Kerasond and Madjka, or to rivers on which the timber can be floated, such as the forests of Livanah and Sireboli. With the exception, however, of boxwood, exported from Kiyeh and Atinah, and a little timber from Batoom, no advantage is derived at present from the extensive forests belonging to the crown. The timber and fire-wood used for local consumption is usually cut in the groves situated at no great distance from the sea-shore, or near the villages, and which are claimed by the inhabitants as belonging to them. In consequence of these woods having been constantly and indiscriminately felled, and often burnt down for the purpose of obtaining arable land, they are in a very poor condition. Of late, however, to prevent this destruction, forest guards have been appointed under the orders of special officers.

THE Paris observatory has been opened again to public inspection, on Thursday evenings. Applications must be made by letter to the Secretary.

SIGNOR D'ALBERTIS left Somerset, in York Peninsula, on May 18th last, on his exploring expedition to New Guinea.

He anchored at Harvey's Reef on the same night and left for Long Island on the following morning. Writing on May 21st, he hoped to be in the Fly River in two days more. He has obtained a parrot which he thinks is new—an *Eclectus*. In the July number of the *Melbourne Review*, an article by Dr. G. Bennett contains a life of Signor D'Albertis, together with an account of his journey to the Arfak Mountains.

It will interest zoologists to know that living specimens of the fish *Ceratodus* have been received at Sydney from Maryborough, in Queensland, and that there is some prospect of their reaching the Zoological Society's Gardens in Regent's Park.

Dr. Miklucho Maclay, the Russian naturalist, is returning to his old field of scientific research in Astrolabe Bay, on the north-east coast of New Guinea, and he desires that passing ships should give him a call.

A correspondent of the *Times* describes two thoroughly prehistoric spectacles which he witnessed in Fiji. One was a young girl dressed in two yards of calico print and a girdle of leaves, breaking "ivi" nuts—a kind of large coarse chestnut with a hard shell—with a genuine stone adze, fixed to its wooden handle by coils of plaited string. The other was a little shrivelled old woman, who was making an earthenware vessel, nearly as large as herself, with no other implements than a round flattened pebble about four inches in diameter, and a piece of wood about as large as the back of an ordinary hair brush, slightly concave on the surface. Dipping both stone and wood frequently in water she moulded the inside of the huge pot with the former, and patted the outside into shape simultaneously with the latter. The vessel was egg-shaped, the opening being at the top or large end of the egg with an everted lip. It was nearly three feet in height and two in diameter, and was formed of clay found near the village. When it is complete a fire is built round it on the ground, and it is carefully baked before being removed. In the houses these pots are placed on their side with the mouth inclined slightly upwards, and are seldom exposed to the risk of breakage by removal from their side. They are, of course, very fragile, but in the hands of the natives they are said to last for years.

The International Geographical Congress at Brussels, which concluded its labours last Thursday, has drawn up a programme relative to African exploration, in which it is recognised as necessary that stations should be established for the purpose of furnishing travellers with the means of existence. An international committee and branch committees in each country are to be appointed. The International Executive Committee will be composed of Sir Bartle Frere, Dr. Nachtigal, and M. Quatrefages, and will be presided over for the first year by the King of the Belgians, with the idea of allowing the presidency to pass successively to distinguished personages of other countries.

The *Boston Medical and Surgical Journal* contains a short account of the late distinguished naturalist, Christian Gottfried Ehrenberg, whose death we announced last week. Born in 1795, at Delitzsch, he commenced the study of theology at Leipsic when twenty years of age. In 1817 he matriculated at Berlin, and devoted most of his time to physiological chemistry. Between 1818 and 1820 he spent much time in the study of the fungi. During the five years following he travelled in Egypt and Arabia. In 1829 he accompanied von Humboldt to the Ural Mountains. Between that time and 1834, under the title, "Symbolæ Physicæ," he published contributions to the anatomy and physiology of the lower invertebrata. In 1835 he published a paper on phosphorescence, which he explained as dependent on the presence of infusoria; and shortly afterwards his works on "Infusoria as Perfect Organisms," and "A Glance at the Deeper Life of Organic Nature," appeared. In 1837 he was elected a Fellow of the Royal Society of England, and, in 1842, one of the thirty Knights of the Order of the Friedens Klasse. During the latter part of his life Ehrenberg suffered from cataract, a successful operation for the removal of which he survived but a few weeks.

At the meeting of the Academy of Medicine in Paris, on August 8, M. Broca read a memoir on cerebral topography, in which, among other points, he showed that Gratiolet was misled in supposing that the fissure of Rolando coincides with the coronal suture of the skull. M. Broca seems to be unacquainted with Prof. Turner's investigations in this direction, which demonstrate that the fissure of Rolando lies as much as 1½ or 2 inches behind the coronal suture.

In a paper of considerable interest in the *Journal of the Asiatic Society of Bengal*, vol. xlv. part 2, 1876, on protracted irregularities of atmospheric pressure, and their relation to variations of the local rainfall, Mr. H. F. Blanford is led to conclude that the distribution of pressure in India is subject to protracted local variations, which are nevertheless not permanent, and that these irregularities of pressure probably explain the irregularities of the rainfall. The former of these may almost be regarded as an established fact in Indian meteorology, while the latter can as yet be regarded as only probable. For the elucidation of this highly practical and scientific question, longer continued observations, and observations embracing a wider extent of the monsoon region, are required than are yet available.

We have on our table the following books:—"Field Geology," W. H. Penning (Baillière, Tindall, and Cox). "Central Africa," Col. C. Chaillé Long (Sampson Low and Co.). "Electro-Telegraphy," F. S. Beechey (Spon). "The Theory of Sound and its Relation to Music," Prof. Pietro Blaserna (International Scientific Series: H. S. King and Co.). "Catalogue of the Western Scottish Fossils" (Blackie and Son). "Notes on the Fauna and Flora of the West of Scotland" (Blackie and Son). "The Principal Manufactures of the West of Scotland" (Blackie and Sons).

All the tanks at the Royal Westminster Aquarium are now complete and stocked. It is estimated that the entire exhibition of marine and fresh-water animals embraces no less than fifteen thousand individuals, representing one hundred and thirty-seven distinct varieties. Out of these the class of fishes includes eighty-five species and thirteen thousand specimens. Among the latest arrivals are several examples of the Spanish Bream (*Pagellus erythrinus*), now for the first time exhibited in this country; six specimens of the John Dory (*Zeus faber*), and a shoal of Boar-fish (*Capros aper*). The reptilian section has been enriched by a specimen of the true tortoise-shell producing turtle (*Caretta imbricata*). It is proposed shortly to commence a series of popular lectures upon the inhabitants of the tanks.

The additions to the Zoological Society's Gardens during the past week include a Pig-tailed Monkey (*Macacus nemestrinus*) from Java, presented by Mr. Meyrick; a Bonnet Monkey (*Macacus radiatus*) from India, presented by Mr. Edward Soy; a Black-eared Marmoset (*Hapale penicillata*) from south-east Brazil, presented by Miss Woellwarth; a Coati (*Nasua nasica*) from South America, presented by Dr. C. R. Bree; a Common Raccoon (*Procyon lotor*) from Central America, presented by Mr. H. B. Whitmarsh; a King Parrakeet (*Aprosmictus scapulatus*) from Australia, presented by Mr. H. T. Sissons; a Rüppell's Spur-winged Goose (*Plectropterus rüppelli*) from East Africa, presented by Mr. M. J. M. Cornely; a Burchell's Zebra (*Equus burchelli*) from South Africa, two Hairy Armadillos (*Dasypus villosus*) from La Plata, deposited; two Russell's Vipers (*Vipera russelli*) born in the Gardens.